

Claims:

What is claimed is:

1. A fusing apparatus for fixing images made from a liquid toner onto a substrate using an electrophotographic process, the apparatus comprising a prefusing roller, a backup roller positioned to create a first nip area between the prefusing roller and the backup roller, and a fusing roller positioned to create a second nip area between the fusing roller and the backup roller, wherein at least one of the prefusing roller and the backup roller is heated to a temperature that provides a prefusing temperature within the first nip area, and wherein at least one of the fusing roller and the backup roller is heated to a temperature that provides a fusing temperature in the second nip area that is different than the prefusing temperature of the first nip area.
2. The fusing apparatus of claim 1, wherein the fusing temperature of the second nip area is higher than the prefusing temperature of the first nip area.
3. The fusing apparatus of claim 1, wherein at least one of the prefusing roller and the backup roller comprises a heat conductive core and a heat source for controlling the temperature of the heat conductive core.
4. The fusing apparatus of claim 1, wherein at least one of the fusing roller and the backup roller comprises a heat conductive core and a heat source for controlling the temperature of the heat conductive core.
5. The fusing apparatus of claim 1 in combination with an electrophotographic printing device, wherein the prefusing roller and backup roller of the first nip area are positioned within the printing device to contact a substrate prior to the fusing roller and backup roller of the second nip area contacting the substrate.
6. The fusing apparatus of claim 1, wherein the prefusing roller is spaced from the fusing roller.

7. The fusing apparatus of claim 1, wherein at least one of the prefusing roller and the backup roller is maintained at a temperature between about 100°C and about 150°C.

8. The fusing apparatus of claim 1, wherein at least one of the fusing roller and the backup roller is maintained at a temperature between about 130°C and about 220°C.

9. The fusing apparatus of claim 1, wherein at least one of the prefusing roller and the backup roller comprises a layer with a surface energy less than a surface energy of the liquid toner.

10. The fusing apparatus of claim 9, wherein the outer layer is a silicone release coating layer.

11. The fusing apparatus of claim 1, wherein at least one of the fusing roller and the backup roller comprises an outer layer with a surface energy less than a surface energy of the liquid toner.

12. The fusing apparatus of claim 11, wherein the outer layer is a fluorinated polymer release coating layer.

13. The fusing apparatus of claim 1, wherein the prefusing roller and backup roller are heated to the same temperature.

14. The fusing apparatus of claim 1, wherein one of the prefusing roller and the backup roller is positioned to contact an image on the substrate, wherein the roller that is positioned to contact the image is heated to a higher temperature than the roller that is not positioned to contact the image.

15. The fusing apparatus of claim 1, wherein the fusing roller and the backup roller are heated to the same temperature.

16. The fusing apparatus of claim 1, wherein one of the fusing roller and backup roller is positioned to contact an image on the substrate, wherein the roller that is positioned to contact the image is heated to a higher temperature than the roller that is not positioned to contact the image.

17. The fusing apparatus of claim 1, further comprising a cooling element for cooling at least one of the rollers of the first and second nip areas..

18. The fusing apparatus of claim 1, wherein the prefusing temperature is selected to evaporate a predetermined portion of solvent from liquid toner on the substrate.

19. A method of fixing images made from a liquid toner onto a substrate within an electrophotographic printing device, comprising the steps of:

placing a liquid toned image on at least one surface of a substrate;

moving the substrate through a first nip area of a fusing apparatus of the printing device, the first nip area being positioned between a prefusing roller and a backup roller; and

moving the substrate through a second nip area of the fusing apparatus, the second nip area being positioned between a fusing roller and the backup roller;

wherein at least one of the prefusing roller and the backup roller is heated to a temperature that provides a prefusing temperature within the first nip area, and wherein at least one of the fusing roller and the backup roller is heated to a temperature that provides a fusing temperature in the second nip area that is higher than the prefusing temperature of the first nip area.

20. The method of claim 19, wherein the step of moving the substrate through the first nip area further comprises evaporating a predetermined portion of a solvent from the liquid toned image.

21. The method of claim 19, wherein the step of moving the substrate through the first nip area further comprises providing the liquid toned image on the substrate in a direction so that the image contacts a heated prefusing roller as it moves through the first nip area.

22. The method of claim 19, wherein the step of moving the substrate through the second nip area further comprises fusing the liquid toned image onto the substrate.